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To be honest, to be kind—to earn a little and spend a little less; to make, upon the whole, a family happier for his presence; to renounce, when that shall be necessary, and not be embittered; to keep a few friends, but these without capitulation—above all, on the same grim conditions—to keep friends with himself—here is a task for all that a man has of fortitude and delicacy!—Stevenson.

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VOL. IX JANUARY No. 1

EDITORIAL

THE CHICAGO BANQUET

It was the privilege of the Editor to attend the banquet of the Chicago Branch Friday evening, January twentieth. We esteem it a privilege because of many reasons, some of which we will enumerate.

First, because Chicago has the largest membership of any of the Branch Societies, is easily accessible to many members of other Branches; consequently it is much easier to secure a large attendance.

Second, there are more good workers in the Branch than is usual. This fact is easily accounted for by the fact that there are many of the old members of the Society living in or near the city. We do not mean to cast reflections with regard to the age of those members, but do mean that there are many that have been members nearly all the time that the Society has been in existence, and some ever since the organization of the original Society.

Third, with such men as Burt for President, such Secretaries as Frank Hanlon and Thornton, the Branch is extremely well organized. The officers named are well supported by the balance of the official board, who are all stars in their positions, therefore we can say that it is one of the very best Branch organizations in the Society, though there is no doubt that many of our Branches are fully as well-organized, when consideration is given to size.

All in all, it was a very real time that Chicago put across. We were very glad of the opportunity to enjoy the pleasures of the occasion. We hope to enjoy another such Banquet at some future time.

* * * * *

Did you notice how efficient and businesslike the Committee enrolled and handled the crowd?

* * * * *

"Dan" seemed to be quite a favorite in some respects; Chicago took good care of the out-of-town guests, didn't they, "Dan"?

* * * * *

How "Ed" did absorb that kiss! ! !

THE BANQUET OF THE CHICAGO BRANCH, A. E. S.

Printed as Submitted by the Branch Publicity Committee.

As per custom, this annual event took place in January; the date was the twentieth, and the place the Elks' Club, 174 W. Washington St. This was a departure from precedent, as the custom has been to hold these banquets Saturday evenings, and the twentieth fell on Friday. Whatever aversion may have been felt against changing to an evening during the week must have been quickly dispelled when the guests began to assemble, as every one seemed to have turned out early; all seemed eager to meet old friends and make new acquaintances. We found a large number of "Bills" in the crowd, who made the Club their headquarters and, of course, were right at home.

The Committee believes it has found the really ideal place in which to hold the Banquets in the future; there seems to be a "Home" atmosphere somehow, which has not been experienced at previous affairs, and, without a doubt, the Banquet Hall is the finest the Branch has ever been privileged to use. It is a wonderfully well-proportioned and really brilliant room, which seemed to be reflected upon everyone present, and all present enjoyed every minute of the time. We are sure every word spoken was heard by every person in the hall; the papers and addresses were very good, the entertainment features excellent, and in the inner man feasted as never before, hence we will "Tell the world" it was SOME EVENT.

Intellectually the program was fully up to the standard for which the Branch has become nationally noted. The President of the Branch, George Burt. delivered the address of welcome, after which he introduced Oscar E. Servis, Past Supreme President, as Toastmaster for the evening; this in itself would insure the success of most any event. We are sure that all will agree with us that Oscar did a very good job, a thing for which he is noted.

After the Toastmaster's address, he introduced Mr. J. C. Kretschmer of Chicago Branch, who read a paper entitled, "The Chemical Analysis of Brass Plating Solutions." After this paper, which was well received, the Editor of THE REVIEW, Walter J. Allen, of Grand Rapids, Mich., was introduced and spoke, taking the title of the paper as his subject, using very plain English. Walter surely did himself proud, and we are sure his talk will not only make our members ap-

preciate THE REVIEW, but will also aid in securing more material to fill its pages.

Someone on the Committee has been accused of being a "Sleuth"; let that be as it may, we know that when any of them start out to accomplish something, they usually get results. When we started and took up "the scent" to get a speaker upon the subject of "Public Interest," the idea uppermost in their minds was to get an extraordinarily good one. After a long series of deductions, the "Sleuth" finally located one of the long-time friends of the Society in the person of Harry De Joannis, former Editor of "The Brass World"; his talk was surely worth going miles to hear, particularly in view of his knowledge of our work in the Society as a whole. He made many telling points of value to the members of the Society, and their employers as well.

The paper on the subject of "Cadmium Plating," by Mr. Humphreys, a chemical engineer of Kokomo, Ind., interest was drawn to this paper, as the subject is comparatively new. The samples displayed created a great show of interest, as they were different in many respects than many of the members supposed. This paper may be published in THE REVIEW, and will prove of interest to many of our members.

Finally, these Banquets are expected to add something to the Society. We believe that this has been accomplished; that those who missed it have suffered a distinct personal loss. It was "the best ever," the largest attendance on record. Make a firm resolution now to be with us next year and enjoy the best Banquet of the Society.

ADDRESS OF PRESIDENT GEORGE BURT

Read at the Chicago Banquet.

Friends and Fellow-members:—

It is a pleasure to meet here tonight those with whom I have been associated in the past few years in the work of this Branch. Some of these are truly great men in their lines, and always ready with the needed information, to lead us out of the wilderness. But great men are but little in themselves compared to the thing they represent, they are but the keystones in the arches erected by the unknown powers that shape our ends, rough hew them as you may.

The object of this Society is the advancement of the science

of Electro-plating. In the principal manufacturing cities of this country you will find branches just like this one, each in their own way doing the same work, and all united under our Supreme Officers in the grand work of helping each solve the problems of our daily tasks.

Our national officers are men of practical experience, who are giving their time and talents in harmonizing the efforts of the different Branches along lines which are of the greatest value to all.

Our MONTHLY REVIEW is something to look forward to and we often find there the solution of a problem that has been troubling us, something that has been simplified by careful research or the discovery of a new method. The Editor, Mr. Allen, would like to have more material than he is getting, in order that he may continue to give us the same high-class articles in the future that he has in the past. It is at the Annual Banquets of the Branches, Chicago Branch in particular, that some good material is brought forth. We have something in store for you tonight. The Research Committee, which was appointed at our last Convention to act in conjunction with the Bureau of Standards, has decided first, to take up the problems that are connected with nickel-plating, owing to the extent to which this metal is used, as fifty per cent of all metal deposited is nickel. The Committee, consisting of Messrs. S. E. Hedden, Wm. DeLage and Joseph Haas, met at the Bureau of Standards, October 28 and 29, 1921. Mr. Hogaboom also was present. One thing of value was reported from this meeting: a method of testing and keeping constant the acid content of a nickel solution, worked out by Mr. Thompson of the Bureau of Standards. Another meeting will be called in the Spring, and the results of other research reported.

We consider the Bureau of Standards to be our best friend. At all of our Conventions and most of our Banquets, the Bureau has been well represented. Many new and valuable solutions have originated there, and timely assistance has been rendered to us and our employers.

As we look back over the last ten years, we see that much has been accomplished, that there has been improvement in all lines, that we are using new materials, new and more scientific methods and appliances, and perhaps the greatest thing of all, more co-operation among our members.

Chicago Branch is the largest in the Society, but there are still some good men in this territory struggling alone; men

whom we could help and who could help us. We expect soon to have them as members.

I want to say in conclusion that we are not going to rest on our oars. We know there will be great improvement in the future, but we are not going to wait for it; we are going to help it come. That is why we are here.

To our guests this evening, on behalf of Chicago Branch, I extend a hearty welcome.

INDUSTRIAL STANDARDIZATION IN GERMANY.

Insufficient attention has been given to the rôle which standardization is playing in German industrial reconstruction. The German industries are planning and are carrying out a far-reaching program of standardization as a necessary step in building up an unprecedented industrial structure which must rest in large measure on an extensive foreign trade. In no other country except Great Britain is standardization work being carried on upon a scale, or with an intensity, comparable to that in Germany.

The German work is of special interest to those responsible for the management of American industries, not only because of its importance, but also because of the similarity in the historical conditions surrounding the national standardization movements in Germany and in America.

Prior to 1917 a vast amount of standardization work had been carried out in Germany by individual companies, and by engineering societies and industrial associations, but, as was the case in America before the organization of the American Engineering Standards Committee, the work had not been unified along national lines.

As has been the case with all the other national standardizing bodies, except the British, which was organized in 1901, the success of the standardization work carried out by the various countries during the World War as a part of their national conservation programs, was a chief cause of the formation of the Central German body. It is called the "**Normenausschuss der Deutschen Industrie**," and was organized by the Verein Deutscher Ingenieure, at the suggestion of the German Government in 1917. The present membership consists of engineering societies, industrial associations and government ministries, and in addition there are 700 firms who are contributing members. The work of the Normenaus-

schuss deals only with those subjects which concern two or more industries or branches of industry.

It is remarkable that the national standardization movement in Germany should have been so thoroly organized, and that so much work should have been accomplished in four years. Hundred forty-four approved standard-sheets have been issued and over five hundred others have been so far developed that they have been published in tentative form. The standards are issued under the general designation of German Industrial Standards ("Deutsche Industrie Normen", usually contracted to the slogan "DINORM"). The Germans were the first of the national bodies to publish standards in loose-leaf form. The work is so divided as to make each sheet as nearly independent as possible. Firms purchase these sheets in quantity, issuing them directly to designers, draughtsmen and foremen for use as working drawings and data sheets. (This plan is now followed by the Austrian, Dutch, Swedish and Swiss bodies.) The sale of sheets amounts to about 100,000 monthly.

From almost the first the "Normenausschuss" has had a periodical publication dealing with standardization. Formerly it was a separate publication, but now it forms a section of "Der Betrieb," a journal dealing with the general question of production and efficiency engineering. The communications from the "Normenausschuss (Mitteillungen)" average about 16 quarto pages per issue and form a separate section in this journal, which appears semi-monthly, and has a circulation of 8,000 copies.

The organization provides an extensive information service on standardization work in Germany and other countries, which is available to the industries as well as to their working committees. This is along much the same lines as the information service which has been started by the American Engineering Standards Committee. In this connection it is interesting to note that in general the German and Japanese industries appear to study foreign developments much more closely than do those of other countries.

Organization and Methods of Work.—The organization and methods of work are similar to those in other countries. Next to the American Engineering Standards Committee, the German organization is the most decentralized of the national standardizing bodies. There is a Main Committee composed of representatives of the various national organizations supporting the movement, and a smaller Executive Committee.

The detailed technical work of each project is in the hands of a Working Committee which in Anglo-Saxon countries would be called a "Sectional Committee," i.e., a committee made up of representatives of all bodies interested in the particular subject in hand.

Proposals for new subjects for standardization must come from some responsible body. The industry concerned is consulted, generally by a conference of the various organizations interested, to determine whether it is the consensus of opinion that the work should go forward. In case it is decided to undertake the work, the conference designates the chairman of the working committee.

The central office digests the information available on the subject for the use of the working committee. When agreement is reached in the committee on the draft of a standard, it goes to the central office for editorial work. There it is scrutinized to see whether it is consistent with other standards; whether points have been included which concern other working committees; whether the drawings and nomenclature are in approved form, etc. After this editorial checking, the central office has the draft of the standard put into proof form. It is then reviewed by an official clearing house committee, which contains a representative from each major line of work being carried on by working committees. If any change in substance has been made, it goes back to the working committee. If no such change has been made, it is published in the **"Mitteilungen,"** the official publication of the Normenausschuss, as a tentative proposal. Upon recommendation of the working committee, the standard is mailed to the members of the Executive Committee with a supporting statement. With their approval it is then republished as an official proposal. Six weeks are allowed for criticism, when a standard is finally published, unless additional important criticisms are received.

Work in Special Industries.—The foregoing refers to the work of the central body only, which is limited to subjects common to two or more industries. In addition there are some fifteen organizations, known as special industry committees, each of which deals with the standardization work peculiar to a single industry, such as shipbuilding, electrical, agricultural, automotive, elevator, locomotive, paper, textile, and woodworking.

These commitees are closely affiliated with, but not strictly an organic part of, the central body. They are organized not by the "Normenausschuss," but by one or more technical or

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trade associations concerned with the particular subject in hand. Standards formulated by the special industry committees are published by the organization responsible. In most cases the final standards are published in loose-leaf form modeled closely after that of the standards issued by the "Normenausschuss" itself. These standards are submitted to the "Normenausschuss" before publication, in order to keep them consistent with the regular series of German industrial standards.

The volume of work being carried out thru these special industry committees appears to be at least as great as that under the direct control of the central body.

Characteristics of Continental Work.—Looked at broadly, and with exceptions such as must always be made in general statements of the kind, the continental countries are going much further into dimensional standardization than has been done in Anglo-Saxon countries. This includes interchangeability of supplies and of machine elements, the interworking of parts and of related apparatus made by different makers, and the interchangeability, so far as the use is concerned, of complete machines and apparatus. By far the greater part of the work of the "Normenausschuss" is dimensional, greater attention being paid to such matters as machine elements, schrew-threads, bolts and nuts, standard diameters, and systems of limit gaging. The Anglo-Saxon mind takes more to matters having to do with purchase and contract, such as specifications for materials, and for performance of apparatus, methods of test, etc. The "Normenausschuss" itself has done very little of this type of work as yet, but it has been highly developed by some of the German special industry committees, for example, in the electrical industry. Some of these special industry committees are very active in the elimination of types, sizes and grades of manufactured products, and a special work has been introduced for this type of work, "Typung."

There is a greater dependence, on the Continent, upon theoretical and fundamental considerations, the Anglo-Saxon temperament giving rise to a much larger degree of expediency in adjusting commercial considerations in the process of arriving at agreements.

German manufacturers will go farther in yielding apparent commercial advantages for the sake of advancing their national industry as a whole than is the case in America or Great

Britain. Three principal reasons for this are: the great economic pressure under which German industry is laboring; the mental trait of more readily acquiescing in decisions affecting national welfare; and the belief that an essential to the rehabilitation of German industry is the rebuilding and great enlargement of their export trade, for which the importance of standardization on national lines is more readily apparent than it is in domestic trade.

The Germans have not yet had their standards translated into foreign languages for use in export, as the British are doing, but they are now giving consideration to this question.

As typical examples of the German work, their system of "preferred numbers" and their standard series of handles may be mentioned. The first is a fundamental piece of work, founded on theoretical consideration and of the first importance. It is a simple system of numbers for use in all new standardization work, in which gradated numerical values are required, such as standard gradated diameters of pulleys, thicknesses of plates, or capacities of machines. The Germans believe that its use is going to lead to great economies in material, in reducing the number of sizes, ranges, etc., simplify the carrying of stocks, facilitate interchangeability. It may be shown theoretically that, under average conditions, a given number of standard sizes laid out according to these numbers, will be better fitted to any series of jobs taken at random, than would be the same number of sizes laid out in any other way, and this with a minimum of material.

The standard handles furnish a typical example of German love of thoroness of detail. There are two shapes, each adapted to a particular method of use, and there is a series of sizes for each shape. The profiles have been worked out with the most extreme care, an efficiency engineer having been employed to make time-motion studies to determine the exact profile that would insure the greatest accuracy in operation with the minimum fatigue of the workman's hand. It is felt that by doing a thoro job once for all, different industries and firms will be saved from doing the same thing over and over, but always less well, and that at the same time interchangeability is introduced.

Industrial Significance.—The standardization movement in Germany is particularly significant, since Germany is one of the three leading industrial countries. The industries of Austria, Holland, Sweden, and Switzerland, are so intimately related to those of Germany on account of geographical and

other relationships, that they are necessarily affected very largely by developments in Germany.

It appears that the work is being woven very intimately into the industrial fabric. The very large number of standards purchased by the industry, and the fact that the central organization has 5,000 firms which are co-operating members, are a sufficient indication of this.

There seems to be a striking analogy between the present standardization movement in Germany, and the research movement developed there a generation ago. Whatever estimate one may place upon the rôle it played in German industries generally, everyone agrees that research was fundamental in the development of their great chemical industries. The rôle which the Germans are expecting standardization to play in all their industries would be not unlike the rôle which research has played in their chemical work.

[NOTE. A copy of a report on this subject, which was rendered to the American Engineering Standards Committee by its Secretary, will be sent upon request.]

INDUSTRIAL SIGNIFICANCE OF STANDARDIZATION

Submitted by the Research Committee, A. E. S.

(1) Stabilizes production and employment, since it makes it safe for the manufacturer to accumulate stock during periods of slack orders, which he cannot safely do with an unstandardized product.

(2) Reduces selling cost. This is generally overlooked. Possibilities of reduced costs are generally even greater in distribution than in production.

(3) It enables buyer and seller to speak the same language, and makes it possible to compel competitive sellers to do likewise.

(4) In thus putting tenders on an easily comparable basis, it promotes fairness in competition, both in domestic and in foreign trade.

(5) It lowers unit costs to the public by making mass production possible, as has been so strikingly shown in the unification of incandecent lamps and automobiles.

(6) By simplifying the carrying of stocks, it makes deliveries quicker and prices lower.

(7) It decreases litigation and other factors tending to disorganize industry, the burden of which ultimately falls upon the public.

(8) It eliminates indecision both in production and utilization,—a prolific cause of inefficiency and waste.

(9) By concentrating on fewer lines, it enables more thought and energy to be put into designs, so that they will be more efficient and economical.

(10) By bringing out the need of new facts in order to determine what is best, and to secure agreement on moot questions, it acts as a powerful stimulus to research and development,—and it is thus in decided contrast to crystalization resulting from fixity of mental attitude.

(11) It is one of the principal means of getting the results of research and development into actual use in the industries.

(12) It helps to eliminate practices which are merely the result of accident or tradition, and which impede development.

(13) By concentration on essentials, and the consequent suppression of confusing elements intended merely for sales effect, it helps to base competition squarely upon efficiency in production and distribution and upon intrinsic merit of product.

(14) Standardization is increasingly important for the maintenance and development of foreign trade. There is strategy in nationally-recognized "American" specifications.

(15) The efficiency of competing countries, increasing thru national standardization programs, is liable to transfer competition from foreign markets to our own shores.

(16) Joint effort in bringing about standardization within and between industries almost invariably leads to better understanding and to beneficial co-operation along other lines,—a step toward the integration of our industries.

If we work upon marble, it will perish; if we work upon brass, Time will efface it; if we rear temples, they will crumble into dust; but, if we work upon immortal souls, if we imbue them with principles, with the just fear of God, and love of fellow-men, we engrave on these tablets something which will brighten all Eternity.—Webster.

Can you say that a man who marries a widow named Elizabeth who has two children, get a second-hand "Lizzie" and two runabouts?

WHAT THE BRANCHES ARE DOING

DETROIT

The meeting was well attended and interesting. Several members were again with us who have been absent for several months.

The Education Committee reported having made arrangementsc for the reading of a paper by the Author, M. G. Kopf, Director of Research and Standards of the Davis Sewing Machine Co., Dayton, Ohio. The subject is: "The Corrosion of Metals; Cause and Effect," and will be freely illustrated with stereopticon views. Invitations to attend are extended to nearby Branches and representatives of all manufacturers in the metal industry in Detroit; also some of the Technical and Engineering Societies.

The question of the Detroit Branch affiliating with the "United Engineering and Technical Societies of Detroit" was discussed, and will be considered at the next meeting.

Mr. Shepherd exhibited photographs of the Electric Tank heater and results of tests for effective raise of temperature and range of temperature control.

Mr. Woodmansee described the manner in which he heated his pans of abrasive material by electricity, using elements similar to those used in electric irons.

A permanent meeting-place has been secured at the Board of Commerce Building.

The next regular meeting will be held on Friday, February 3rd, at the Board of Commerce. A complimentary dinner will be served on this occasion, and all members are requested to be on hand at 6:30 prompt.

PHILADELPHIA

The regular meeting was held on January 6th, with President Gehling in the chair.

Samuel Barr gave an interesting talk on carbonates in silver solutions, and in the manner of removing the same by the cold process, he gave a practical illustration of this showing a small quantity of solution placed outside during the meeting.

Thomas F. Jordan, 1017 Nedro Ave., Philadelphia, who was transferred from the Rochester Branch, was accepted.

CONNECTICUT VALLEY

A regular meeting of the Connecticut Valley Branch of the A. E. S., was held on Tuesday, January 10, at 31 Crown St., Hartford, Conn. The meeting was called to order at 8:30 p. m., President James A. Bagshaw presiding; after the regular business was transacted, President Bagshaw turned the meeting over to our Librarian, Mr. E. N. Miller, who introduced Mr. J. C. Oberender as speaker for the evening. Mr. Oberender gave us a fine talk on Lacquer Enamels; he had a large num-

ber of very excellent samples, many questions were put to him during his talk, which were ably answered. At the conclusion of his remarks a rising vote of thanks was given him. We had a good attendance.

Our next meeting is to be held on Tuesday, February 14 at our new permanent quarters, 202 Washington St. We have a fine hall, centrally located, about ten minutes walk from the Union Station, and one block from the trolley line. We are to meet the second Tuesday of each month. At our opening night, February 14, we are going to serve a lunch, with a musical entertainment. This is to be an open meeting, and we would like all to come and bring a friend.

GRAND RAPIDS

The regular monthly meeting was held on January 11, President Whalley presiding. Mr. Allen reported that everything was going along nicely with regard to our new laboratory.

A smoker will be held on our next regular meeting-night to discuss the plans for a banquet in the near future, and to appoint an entertainment committee.

The "We Want to Know" column of THE MONTHY REVIEW was presented by Librarian Poe, and a general discussion followed.

INDIANAPOLIS

The Branch held its regular meeting on January 14th, with President Hennessey presiding, and with a good attendance.

One application was received, and one honorary member elected. As there was a vacancy on the Board of Managers, Mr. William Cartheuser was appointed to fill the vacancy. It was decided that we hold a smoker and get-together meeting on the next regular meeting-day, February 11.

CHICAGO

The Chicago Branch of the A. E. S. held its regular January meeting on the 14th, with President George Burt as presiding officer. We had our usual spicy meeting, a goodly number of members being present, with a lot of peppy questions and answers.

We also had the pleasure of having two members of the Detroit Branch, Mr. Lovering and Mr. Shepperd, with us, who added to the spice of the evening by entering the discussions, and they stated that they were glad to notice what a lot of co-operation the different Branches were giving each other, which seemed to them as though the Society was realizing its ideals: co-operation and education to the platers.

Mr. Ruhlman, member of the New York Branch, was with us also, and spoke along the lines of the evening, and he had some new information from Europe on war findings, and would furnish our Secretary with the formulas at a latter date for publication in THE MONTHLY REVIEW.

The chairman of the Banquet Committee says we are all ready for festivities Friday, January 20, and it is Hot Tam, Hot Dog, and everything.

CHICAGO QUESTION-BOX

QUESTION NO. 1—A better method of plating Aluminum parts, herewith consisting of aluminum, copper and tin.

ANSWER NO. 1—Referred to article in "REVIEW" by James W. Hamlin, "On Plating of Aluminum."

QUESTION NO. 2—What is the cause of a brass solution turning slightly red if not quickly rinsed?

ANSWER NO. 2—It was suggested that the solution may be low in metal and too much free cyanide. It was suggested that more metal be added to reduce the same. It might also be caused by zinc content being too great, causing an electro-galvanic action on the surface of the solution when removing work from tank, causing discoloration to appear.

QUESTION NO. 3—What is the method of producing Lemon Brass?

ANSWER NO. 3—It was suggested to tint the lacquer with dyes prepared for this purpose, or to dissolve 3 or 4 grains of picric acid in a pint of alcohol and adding this to the lacquer until the desired color is reached. Care must be exercised in the use of picric acid, as a very little goes a long ways in making tints.

QUESTION NO 4.—What will prevent duplex copper from blistering on polished steel that is dipped in arsenic and muriatic acid, but not cyanide coppered. Work comes from solution good, but blisters under the buff.

ANSWER NO. 4.—It was suggested that maybe the work was not clean, and that the parts were porous and absorbed a portion of the dip which under expansion caused by friction heat of the buff, caused gas to appear and raise the deposit appearing like a blister, or this can happen by work touching in immersion and rubbing off preparatory dip, and where immersed in solution did not adhere Lastly it was stated that this process required absolute accuracy of about 10 seconds in arsenic dip, as either 8 or 12 seconds were either too fast or too slow, making it necessary for absolute accuracy and the risk great.

ANSWER 5.—What is the best abrasive for polishing, artificial or mineral?

ANSWER NO. 5.—It was thought that for roughing the artificial abrasive was the sharpest but broke down quicker than Turkish emery. For fine work on steel and good high color Turkish emery was thought the best.

It was stated that in polishing brass this was hard to discern until the work was ready to buff and then scratches loomed up.

QUESTION NO. 6.—Formula for nickel solution to barrel plate on steel and brass.

ANSWER NO. 6.—7 oz. single nickel salts
7 oz. double nickel salts.
3 oz. boracic acid.
3 oz. sal ammoniac.
and use 6 volts.

QUESTION NO. 7.—What causes nickel to peel when plated over solder. The work appears to be perfectly clean before going into the vat. It always peels in the same place?

ANSWER NO. 7.—It was suggested to use a mild cleaner. A good cleaner to use was given as follows:

3 oz. carbonate of Soda
2 oz. silicate of soda
1 oz. sodium hydrate
2 oz. trisodium phosphate.

QUESTION NO. 8.—What is potential of cadmium, and is it negative or positive to steel?

ANSWER NO. 8.—It was stated that the potential is about 1.88 slightly below steel according to the latest table, and it is slightly negative to steel.

CHICAGO QUESTION-BOX

QUESTION NO. 1—Why does my new copper solution plate brass, when I only purchased Carbonate of Copper? Sample herewith.

ANSWER NO. 1—Several theories were advanced, such as in the manufacture of Copper, zinc accidentally got into the mixture, and Mr. Servis offered to analyze the same for the unfortunate member.

QUESTION NO. 2—Will a 5-minute deposit stand the salt water test, the deposit being cadmimum?

ANSWER NO. 2—It was thought that it would for about 150 hours.

QUESTION NO. 3—What is a good test for Cadimum deposit?

ANSWER NO. 3—It was thought that the aerated water test was the best and most simple method.

QUESTION NO. 4—What causes irregular streaks in brass?

ANSWER NO. 4—This question was not explanatory enough to intelligently cope with, as there are several reasons, so we answer one reason that may help the member until he submits samples or explains more thoroly. The solution may be too sluggish. Add Cyanide and Carbonate of Soda and rejuvenate cyanogen, causing the solution to function better.

QUESTION NO. 5—What is the best mixture for die casting to be nickel-plated?

ANSWER NO. 5—88% Zinc Spetter, 7% Copper, 3% Tin and 2% Aluminum.

QUESTION NO. 6—How much sodium sulphate can be added to a Nickel Solution without darkening the nickel?

ANSWER NO. 6.—It was thought that this was a useless addition, but if desired, to add very cautiously, and upon noticing closely the work in the solution starting to turn dark, stop. No amounts given.

QUESTION NO. 7—What are Baumé readings on commercial ammonium hydroxide, having a pecific gravity of .8864, .8967, .9106?

ANSWER NO. 7—It was thought that 26% Baumé, and the member was advised to get a hydrometer with combined readings at supply houses.

QUESTION NO. 8—Wanted—A reliable formula for black upon brass for lighting fixtures; also some latest lacquer finishes.

ANSWER NO. 8—8 oz. white arsenic dissolved in 6 oz. caustic soda, and 2 oz. carbonate of Copper, dissolved in 2 oz. of cyanide. Mix together and make 1 gallon of solution, by the addition of sufficient water. Lacquer finishes referred to a member in the lacquer business, who promised the member full information.

QUESTION NO. 9—Wanted—Formula for brass brightener containing ether or carbon-disulphide.

ANSWER NO. 9—1 lb. of sodium hydrate; 1 lb. arsenic; enough ammonia to dissolve. Add a few drops of ether; add cautiously to the solution.

3 oz. of chloroform or ether, dissolved in 4 oz. carbon disulphide, half lb. of arsenic, dissolved in half gallon of old brass solution; add these two mixtures and shake well hourly for about 24 hours, and add 3 ozs. to each 100 gallons of solution twice a week. Too much causes a gray appearance.

QUESTION NO. 10—A member submitted one canopy of Brush Brass and one ceiling light of Buff Brass, that had been prepared in their respective finishes very carefully, and notwithstanding there appeared that discoloration called spotting-out, and he desired to know the cause and remedy.

ANSWER NO. 10—These articles were passed to all members for inspection, and then the discussion started. Several theories were advanced for the cause, and several remedies for the cure.

One theory for the cause was that in the drawing operation on the punch press, in annealing it assumed scale and then was pickled in acid to remove the same, and in the next draw the article was burnished down and in contraction withheld acid in pores that purged when expansion took place in heating the object to finish before lacquering. Another was that pickling in rolling, brass caused acid to attack zinc in the mixture, and bring out copper color in the Alloy, and pores containing acid, this purged under friction heat of preparing for plating operation, causing appearance of organic discoloration when lacquered, and it was suggested to try expurging of article in clean hot water before final finishing and to dip into gasoline or Lac Thinner instead of usual hot water, and dry in hot air dryer.

TORONTO

The regular meeting was presided over by President William H. Cresswell.

The Entertainment Committee, which was appointed to arrange for a social gathering of members and friends, reported progress and instead of using the Society's funds, the expense will be taken care of privately by the members.

We expect to be in readiness to resume our studies in the Platers' Class at the Toronto Technical School the first week in January, being

the beginning of the second half of the term. The work of the class this session will be conducted along research lines. Mr. James Vallier and Mr. William H. Cresswell were appointed a committee to interview the school authorities on behalf of the class.

TORONTO QUESTION-BOX

QUESTION NO. 1—What caused battery action in a cleaning tank. The tank was made of steel. The metals being cleaned were Nickel silver, Brittannia metal, and steel, separately. Battery action set up in each case.

ANSWER NO 1—It was suggested that the tank not being insulated might be the cause.

QUESTION NO. 2—A member had a brass bath which deposited too light a color. He had added arsenic.

ANSWER NO. 2—Judging from the amount he had used, the consensus of opinion was too much arsenic.

ST. LOUIS

The regular meeting held on January 7 was well attended. In addition to routine matters, the Banquet Committee created much interest in the coming banquet to be held on the 28th. An interesting letter was read from A. L. Duffee, one of our members, now located in Houston, Texas.

Word was also received that we can expect to have with us, at the banquet, our highly esteemed member, (Sergt.) Frank C. Rushton, who for nearly two years has been making use of his Spanish in Mexico City.

Compositions (those used before and after plating), was the subject of the evening. A most excellent paper was read by Frank E. Terrio. E. W. Mueller and H. H. Williams also did their bit, after which many questions were asked. The paper will appear in the February issue of THE MONTHLY REVIEW.

(NOTE—The February number of THE REVIEW will be a St. Louis number. The old Editor kindly agreed to find enough to fill the whole number if necessary.—EDITOR.)

ROCHESTER

Rochester Branch met January 13 at Hotel Seneca. The members are again responding to the call to meetings in goodly numbers.

Mr. S. P. Gartland as president has put some of his well known "pep" into the Branch, and all is well along the "Genessee."

Mr. H. C. Bernard gave us a talk on conductivity of plating solutions and the modification of caustics in plating and cleaning solutions.

Mr. S. P. Gartland talked on zinc baths, anodes and their efficiency. Mr. A. H. Cameron was in on the discussion with both feet, along with Mr. Groh, Hasselink, and Doering.

Mr. R. K. Hutchings has washed the plating solution off his hands and is now on the salesforce of the Oakley Chemical Co. The Branch wishes him every success.

Mr. Hesselink seems to be quite busy lately; we are expecting his article on silver will be worth going miles to hear. Mr. Hesselink is doing the tank jazzing for the Van Berg Silver Co.

The Entertainment Committee has prepared a real evening's enjoyment for the members on February 4th at the Hotel Seneca, with cigars, cigarettes, and lunch. Everything will be gratis.

Mr. J. Jordan will show moving pictures, some of which will be a complete surprise. The other forms of entertainment are being kept secret by the Committee, and will also be surprises. Leave your troubles behind and come prepared to enjoy yourself.

CLEVELAND

The attendance was good at our January 15th meeting. The date for our first banquet will be February 25. We intend to conduct a vigorous campaign in the meantime and endeavor to line up several of the eligible platers of Cleveland. The papers of this city claim that Cleveland has the greatest variety of manufacturing concerns of any city in the country, especially in the metal lines. That being the case there are, no doubt, many platers here that we have yet to become acquainted with and to get them interested in the Society and its aims. We intend to hold an open meeting on January 28. Letters of invitation are being sent to all firms having plating departments, requesting their attendance, and also urging them to have their platers attend this meeting.

CINCINNATI

The Cincinnati Branch held its regular monthly meeting on Friday, January 6, with a very good attendance. Roll-call found all officers present.

The Convention Committee reported progress in every respect, everything moving nicely.

Some talk was indulged in about the good of the ampere-hour meter in the silver shops for prompt time and weight. Also Sodium Flouride in nickel solutions, but it must be watched carefully on becoming too acid, then it must be neutralized with ammonia. It seems to run a certain length of time, and then it wants more Sodium Flouride. With this solution one member produced an electrotype on wax .003 inch in thickness in a very short time. They have gone up to one oz. per gallon and are very successful up to date.

We are getting down to real business with our Convention Board, pointing out every detail that is beneficial to all A. E. S. members.

NEW YORK

The regular meetings of the New York Branch were held on December 9 and 23, 1921. President J. H. Stremel presided.

The main topic was determining the acidity of nickel solutions, which was demonstrated by Mr. Joseph Haas. It was very much admired by those present. Mr. Haas stated that the method would be printed in one of the future issues of THE REVIEW.

NEW YORK QUESTION-BOX

QUESTION NO. 1—What caused streaks on steel knives while silver-plating?

ANSWER NO. 1—Holes in knives and gas coming out, caused the streaks.

QUESTION NO. 2—Information Wanted—Is plating good for Dutch silver?

ANSWER NO. 2—Yes. Use one oz. of plating, 4 oz. muriatic acid, and 4 oz. of water. Heat until dissolved; add one-half gallon of muriatic acid and one gallon of water.

BOSTON

Boston Branch met the 20th at the American House, with Vice-President Gale in the chair. We had a large attendance. After the regular order of business, Past President Mackie gave one of his best talks of the year, on the gold solution. This was one of the talks that every member of the Branch has been waiting for. It was very interesting, and those who could not attend missed something worth while. The members discussed the subject and Mr. Mackie answered all questions.

MILWAUKEE

The regular monthly meeting of the Milwaukee Branch was held on January 12th, at Lipps' Hall, 321 Third St. President H. E. Armour presided; all officers being present.

The President appointed a committee of six to make arrangements for our Banquet to be held some time in March. The following are the members of the Committee: D. Wittig, Rud Hazucka, P. Sheehan, G. Gehke, R. Steuernagel, F. Marx.

MILWAUKEE QUESTION-BOX

QUESTION NO. 1.—For zinc-plating cold rolled steel why is it that a nitric acid dip is an almost absolute necessity? Can the nitric acid dip be replaced by any other dip or pickle?

ANSWER NO. 1.—If work is to be well-plated in the depressions and threads, a nitric acid bath will have to be used; sandblasting the articles will do just as well, but is more expensive than the nitric acid dip. Work with depressions and threads is not plated well when using muriatic or sulphuric acid pickle.

QUESTION NO. 2.—What is the best method for dead nickel-plating small articles? Same to have a lustre and good color. Articles are made of steel?

ANSWER NO. 2.—Have solution high in acid, plenty of metal and dry quick in clean sawdust.

QUESTION NO. 3.—How is the finish "Platinum Gray" made? Must not be an expensive proposition.

ANSWER NO. 3.—The articles are polished and nickel-plated, then sandblasted with a very fine sand, then lacquered with a white lacquer. Articles only nickel-plated but not polished will not look right.

QUESTION NO. 4.—What are the best conducting salts for a nickel solution made entirely of single salt?

ANSWER NO. 4.—Sodium chloride, ammonium chloride and magnesium chloride.

QUESTION NO. 5.—How can aluminum goods that are shopworn be refinished, and what is the best method for the mat finish?

ANSWER—(1) Make a 10% caustic solution; add sodium to the saturation; use this solution warm as a dip, after rinsing pass thru nitric acid or bright dip; then rinse and dry.

(2) Use a clean hot potash dip, rinse, then dip in a hydrofluoric acid pickle (25 to 1), rinse, then in nitric acid; rinse and dry.

(3) If inside of cooking dishes are to remain white and free from attack of vegetable stains, the article is filled with a 25% sulphuric acid pickle and run with reverse current.

NEW MEMBERS

New York

P. Goring.....155-159 Roseberry Ave., London, England
C. J. Wermlund.....104 Barron Ave., Woodbridge N. J.

Chicago

J. W. Barnmore.....4730 Lexington Ave., Chicago, Ill.

St. Louis

Sidney J. Kelsey.....1000 S. Fifth St., Springfield, Ill.

APPLICATIONS FOR MEMBERSHIP

New York

Charles E. Stiers.....21 W. 18th St., East Orange, N. J.
John Knapp.....91 Elliot Ave., Maspeth, L. I.

Newark

Louis Drude.....594 Fifteenth Ave., Newark, N. J.

CHANGE OF ADDRESS

St. Louis

F. C. Rushton.....4265A McMillan Ave., St. Louis, Mo.
A. L. Duffee.....710 Chartres St., Houston, Texas

New York

P. Morningstar.....420—91st St., Woodhaven, L. I.
J. Painter.....445 State St., Brooklyn, N. Y.
T. Stretch.....383 Monroe Ave., Brooklyn, N. Y.

Indianapolis

H. Maze.....320 E. Walnut St., Indianapolis, Ind.
William Cartheuser.....1817 Orlean St., Indianapolis, Ind.

Detroit

A. E. Jones.....4873 Linsdale Ave., Detroit, Mich.
E. W. Woodmansee.....1427 Lee Place, Detroit, Mich.

Toronto

C. Kemish.....271 Boston Ave., Toronto, Ontario, Canada

Pittsburgh

G. Newman.....1617 Belasco St., Pittsburgh, Pa.

Chicago

Henry Lanz.....916 W. Garfield Blvd., 51st St. Sta., Chicago, Ill.

Providence-Attleboro

G. W. Scott.....409 First St., North, Janesville, Wis.

Boston

Samuel Herrick.....c/o S. H. Chemical Co., Room 913, No. 6 Beacon St., Boston, Mass.

New York Branch, A. E. S.

Extends to all A. E. S. members, their friends, and the trade in general, a cordial invitation to attend a

FOUNDERS' SESSION

to honor

MR. CHARLES H. PROCTOR

During the afternoon of the

ANNUAL BANQUET, FOUNDERS DAY, FEB. 18,

at the Aldine Club, 200 Fifth Ave., New York, N. Y.

This will be an open meeting. Every one interested in the plating industry should attend this session. Good papers and interesting topics..

Tickets to Banquet and Dance, in the evening, $4 per plate

This will be the best ever. Ladies especially invited.

PRICE LIST OF A. E. S. SUPPLIES

Application Blanks	each	$ .03
Membership Cards	each	.03
Due Receipts	per 500	4.00
Transfer Books	each	.35
Constitutions	each	.10
Electrotypes	each	1.00
Letterheads (same as used by Supreme Office)	per 500	6.00
Envelopes (same as used by Supreme Office)	per 500	5.75
A. E. S. Buttons (Rolled Gold)	each	.90
A. E. S. Buttons (10 k. Gold)	each	2.05
A. E. S. Buttons (14 k. Gold)	each	2.30

The above supplies can be secured by writing to
Supreme Secretary, JOHN E. STERLING,
468 Grand Ave., Long Island City, N. Y.

Die when I may, I want it said of me by those who knew me best, that I always plucked a thistle and planted a flower where I thought a flower would grow.—Lincoln.

BRANCH DIRECTORY

BOSTON

Regular meetings are held second and fourth Thursdays of each month, at 8 p. m., at the American House, Boston. Secretary, A. W. Garrett, 37 Dorset St., Dorchester, Mass.

BRIDGEPORT

Meets third Friday of each month in its laboratory, 260 John St., Bridgeport, Conn. Secretary, L. J. Maraffi, 744 Hancock Ave., Bridgeport, Conn.

CHICAGO

Meets second Saturday of each month, at 8 p. m., at the Briggs House, Randolph and Wells Sts. Secretary, F. J. Hanlon, 2855 N. Richmond St., Chicago, Ill.

CINCINNATI

Meets on the first and third Friday of each month, at 1262 State Ave. Secretary, W. J. Husing, 729 McMakin Ave., Cincinnati, Ohio.

CLEVELAND

Meets last Saturday of each month at Hotel Winton. Secretary, B. F. McCormick, 2024 Wyandotte Ave., Lakewood, O.

CONNECTICUT VALLEY

Meets on the second Tuesday of each month at 202 Washington St., Hartford, Conn. Secretary, G. E. Vibberts, 31 Crown St., Hartford, Conn.

DAYTON

Meets first Saturday of each month at the Y. M. C. A., Dayton, Ohio. Secretary, C. Van Derau, 61 Bish Ave. Dayton, Ohio.

DETROIT

Meets first Friday of each month at the Board of Commerce, Lafayette and Sheldon, at 8 p. m. Secretary, O. H. Phelps, 951 Clay Ave., Detroit, Mich.

GRAND RAPIDS

Meets on the second Wednesday of each month at the Vocational High School, 129 Bostwick Ave., NE. Secretary, J. Andrew Warner, 738 Fairview Ave., N. E., Grand Rapids, Mich.

INDIANAPOLIS

Meets the second Saturday of each month at Hotel Denison. Secretary, Louis Mertz, 1728 Union St., Indianapolis, Ind.

MILWAUKEE

Meets second and fourth Thursdays of each month at the West Side Bank Bldg. Secretary, R. Steuernagel, 1508 Concordia Ave., Milwaukee, Wis.

MONTREAL

Secretary, A. Geroux, 48 Craig West, Montreal, Quebec, Canada.

NEWARK

Meets first, third and fifth Fridays of each month at Forresters' Home, 20 Central Ave., Newark, N. J., at 8 p m Secretary, O. F. Carlson, 225 West Grand St., Rahway, N. J

NEW YORK

Meets second and fourth Fridays of each month at the Broadway Central Hotel Parlors, New York City. Secretary, E. Haas, 504 East 163rd St., New York, N. Y.

PHILADELPHIA

Meets first Friday of each month in the Harrison Laboratory Building, University of Pennsylvania, 34th and Spruce Sts. Secretary, P. Uhl, 2432 North 29th St., Philadelphia, Pa.

PITTSBURGH

Meets first Saturday of each month at 8 p. m., at United States Bureau of Mines Bldg., Forbes St. Secretary, S. E. Hedden, 227 Fifth St., Aspinwall, Pa.

PROVIDENCE-ATTLEBORO

Meets first and third Thursday of each month at 26 Custom House St., Room 16. Secretary, C. J. Poyton, 269 Ohio Ave., Providence, R. I.

READING

Meets on the second Tuesday of each month. Secretary, William M. Fisher, 654 Gordon St., Reading, Pa.

ROCHESTER

Meets every second and fourth Friday of each month, at Hotel Seneca. Secretary, E. E. Fitch, Jr., 607 Sawyer St., Rochester, N. Y.

SYRACUSE

Secretary, M. J. Crean, 109 Court St., Syracuse N. Y.

ST. LOUIS

Meets first Saturday of each month at Barr Branch Library, corner Jefferson and Lafayette Sts. Secretary, H. H. Williams, 4156 Botanical Ave., St. Louis, Mo.

TOLEDO

Meets first Thursday of each month at Toledo University Science Building, Electro-Platers' Room, corner Cherry and Page Sts. Secretary, H. L. Myers, 410 Palmer, Toledo, Ohio.

TORONTO

Meets second Thursday of each month at Occident Hall, Bathurst and Queen Sts. Secretary, C. Kemish, 271 Boston Ave., Toronto, Ontario, Canada.

WATERBURY

Meets every second and fourth Friday of each month. Secretary, Wm. Delage, 47 Prospect St., Waterbury, Conn.